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FACTS ON FOOD WASTE

These facts and estimates on food waste are developed from the best data currently available. Although substantial surveys of gross food loss and wastage have been made, there is surprisingly little detailed information on food waste as it now takes place in this country. For the entire period between World War I and World War II very little research on food waste was carried on, by either private concerns or public agencies. This situation is indicative of the pre-war conception of America as a land of food abundance, and indeed as a land in which one of our major agricultural problems seemed to be that of disposing of food "surpluses."

With per capita food consumption by civilians swollen by war earnings to the greatest in our Nation's history, and with the needs of our military forces and allies continuing to expand, even the 25 percent increase in food production achieved by our farmers in the past 2 years has not permitted us to avoid rationing of many foods, and there is now Nation-wide interest in the facts on food waste and how food can be saved.

How Much Do We Eat?

American civilians buy for consumption about 1,514 pounds of food per person per year - an average of over 4 pounds per person per day - according to a survey made by the Bureau of Human Nutrition and Home Economics in the spring of 1942.

The Army requires more than this - buying about 5 pounds per soldier per day - according to the Quartermaster General's Office.

Despite rationing and some individual shortages, Americans are now, and are likely to remain, the best fed among all the peoples of the great powers. Even under wartime conditions we probably can improve our national health, as Great Britain has, if we put into practice what modern nutritional science has discovered.

How Much Food Do We Waste?

Analytical studies of garbage collected in 247 cities show that the garbage contains an average of 300 pounds of food per person per year - an average waste of more than $\frac{3}{4}$ of a pound of food for each individual every day.

This amounts to roughly 20 percent of the food which is purchased by American householders. Adding such waste as fats and oils that are lost in careless cooking or poured down the sink, and subtracting inedible waste such as egg shells, coffee grounds, melon rinds, et cetera, we may reasonably estimate that about 15 percent of the edible food brought into American homes is wasted. This is equivalent to about 225 pounds of edible food waste per person per year, or about $3/5$ pound per person per day. Raymond Pearl, chief statistician of the Food Administration during the first World War, estimated that the wastage of food in the home amounts to 5 percent of the protein, 25 percent of the fats, and 20 percent of the carbohydrates, or an over-all waste of 19 percent of the calories.

In restaurants and other public eating places, waste occurs because of overstocking, inadequate facilities, overproduction, poor cooking, unskilful handling of food, inexperienced help. Plate waste alone is estimated to average perhaps 6 percent of the food served. And for obvious sanitary reasons, food left on the plate cannot be used for re-serving.

A careful 5-day measurement of food waste in six dormitories of one large midwestern university in 1943, after the introduction of rationing, shows waste ranging from 11 to 19 percent. Studies or estimates of food waste at other colleges, also made in 1943 after the introduction of rationing, show food waste ranging as follows: 8.5 percent, 9.43 percent, 11 percent, 12.4 percent, and 14 percent.

In retail stores there is an estimated over-all food loss of about 3 percent of total sales. Losses in perishable fruits and vegetables are considerably higher. With the total retail store sale of food amounting in 1942 to 15 billion dollars, this means a wastage of some 450 million dollars' worth of food in retail stores alone.

A case study of the New York City Wholesale Produce Market in 1940 indicated a loss of 7 percent in the wholesale phase of distributing fresh fruits and vegetables in that area. This may or may not be representative of losses in wholesale markets in other cities.

Food losses occur also in the transportation of food to market by truck, boat, or train. Food losses in transit may be due to diseased or over-ripe fruits or vegetables included in the shipment, delays in routing, lack of icing facilities, rough handling, or other causes. Based on damage claims paid by Class I railroads, food losses in transportation would appear to be around 2 percent of the total food moved. Actual losses are doubtless above this level.

Avoidable farm losses sometimes occur when parts of crops are not harvested because prices are too low to cover harvesting and marketing costs, or when lower grades of produce are not fully utilized after harvest because of low prices. During the past decade (1933-42) such losses averaged about 2 percent of total production of fruits and vegetables. Avoidable losses for individual produce included apples, 5 percent; plums, 3.7 percent; cherries, 3.5 percent; cabbage, 3.7 percent; cantaloups, 3.1 percent; watermelons, 2.5 percent; onions 1.8 percent; and snap beans, 1.6 percent.

There are many other losses in the production of food prior to harvesting, part of which is avoidable. Plant diseases, insects, rodents, and careless cultivation all take a tremendous toll of planted crops. Disease alone in recent years reduced yields of important food crops as much as 15 percent for wheat, 13 percent for corn, 18 percent for potatoes, 12 percent for apples. Insects and rodents together cause damage estimated at close to 2 billion dollars annually.

Such estimates as are available indicate an over-all loss, including both avoidable and unavoidable waste, between the point of harvest on the farm and the point of sale by the retail market or its equivalent of as much as 30 percent for tomatoes, lettuce, cauliflower; 25 percent for cabbage, spinach, celery; 20 percent for fruits such as apples, pears, peaches; 13 percent for oranges and grapefruit. For less perishable commodities such as potatoes, peas, and beets the estimated shrinkage or over-all loss is from 5 to 10 percent. These estimates relate to average conditions and actual losses: they vary, of course, from year to year and area to area, depending upon the particular conditions and difficulties encountered.

Adding together (1) the waste from farm to retail store, and (2) the waste in the home, but excluding losses on the farm prior to harvest, total food losses or over-all reduction in weight between amounts harvested and amounts actually consumed appear to be between 20 and 30 percent. The lower figure of 20 percent probably would represent a conservative estimate of over-all losses in this country, even in 1943.

What Kinds of Food Do We Waste?

Home wastage appears to be highest in perishables such as fruits and vegetables, and in baked goods. According to an analysis of 160 loads of garbage made by the Sanitary Engineering Research Laboratory of New York University, published in 1941, 23 percent of the garbage consisted of green vegetables, 27 percent of other vegetables, 29 percent of citrus and other fruits, 14 percent of baked goods, and 7 percent of meats, bones, and fish.

A survey made by the Bureau of Agricultural Economics, of retail stores in Washington, D. C. in 1940, indicates that spoilage there results in wasting 13.77 percent of the avocados, 6.8 percent of the cauliflower, 7.6 percent of the cabbage, 7.9 percent of the grapefruit, 12.29 percent of the kale greens, 9.2 percent of the peppers, and 7.8 percent of the peaches.

What Does This Food Waste Mean?

- (1) In 1942, about 13 percent of our total food production was set aside for military and Lend-Lease requirements. This figure will be about 25 percent in 1943. The fact that our over-all food losses are approximately equivalent to our military requirements for 1943 indicates the importance of making every effort to reduce food waste.
- (2) The utmost increase in food production hoped for in 1943, as represented by the goals set for agriculture, is 5 percent. If we could save even a third of our food now wasted we would augment our food supply even more than this goal called for.

- (3) According to the American Bakers Association, we are now eating approximately 2 pounds of bread per week per person. If each home wastes but 1 slice of bread per week, the total would amount to 34 million slices, or approximately 2 million loaves each week. What would the hungry children of Athens or Chungking give for those two million loaves?
- (4) Nutritionists and medical authorities tell us that the American diet is weakest in green vegetables and fruits. How is it we allow so much of these valuable foods to go to waste on our farms and in our stores? How is it almost one-quarter of the food in our garbage dumps consists of green vegetables? (Perhaps we need to learn how to prepare and cook greens as well as we do meats and desserts.)
- (5) The little dabs of butter we leave on our plates in homes and restaurants add up to an enormous aggregate. The saving of only one-half ounce of butter per capita per week would have provided enough butter to have supplied our entire army last year.
- (6) How much needless food waste is caused by our rules of etiquette? Can we afford, in wartime, to refuse to let Johnny pick up the bone in his fingers and gnaw off the last shreds of meat? Is it really good etiquette not to tip your soup bowl to get the last two or three spoonfuls? With a shortage of fats, what's wrong with using bread to sop up the gravy on the plate? Can we afford to prepare and serve more food than the guests will eat just to keep up the reputation of the "bountiful hostess?"
- (7) "Spare the peel and save the spud." When you peel a potato you throw away one-tenth to one-fourth of its bulk, nearly all its iron, which is concentrated close to the skin, and let much of its vitamin C escape.
- (8) Squeeze your grapefruit dry! Just one cupful of grapefruit juice provides approximately a full day's requirement of vitamin C. When you fail to squeeze out the juice after eating the pulp, as much as a quarter of the value you paid for may be wasted.

What Can We Do About It?

This statement describes food waste of two kinds; preventable and nonpreventable. Obviously we cannot completely eliminate the \$189,000,000 of food damage done every year by rats, nor the \$1,600,000,000 of damage done annually by insects. We cannot prevent some blight and rot. We cannot eliminate all bruising and injury of perishable food products in shipment and storage. But much of this wastage can be eliminated by vigorous action. And most of the plate waste in homes and restaurants can be stopped. Food waste in home storage and preparation can be considerably reduced. Retail store loss of food caused by over-handling can be controlled. Food wastage due to prejudice and extravagant eating habits is subject to control. If we can save no more than a quarter or a third of the 20 to 30 percent of our food supply that is now lost between harvest and garbage pail, the result would be immediately apparent in larger food reserves. Avoidable food waste is, in fact, the largest and most economical extra food supply available to us. This is a war food job in which everyone can share.